

BOOK REVIEWS

THE QUATERNARY HISTORY OF SCANDINAVIA by Joakim Donner, Cambridge University Press, Cambridge, 1995. No. of pages: 200. Price: £60.00 (hb). ISBN 0-521-41730-9.

This volume provides a regional overview of the Quaternary in Denmark, Norway, Sweden and Finland. Such an overview has been lacking, so its publication is extremely useful for any researcher dealing with the Quaternary of Scandinavia. Treatment of glacial and interglacial periods is well balanced; the author is a well known expert in both fields, and the text is scientifically sound and well written.

In major parts of Scandinavia, the Pleistocene ice sheets have repeatedly removed most of the older sediments. Consequently, most of the text (112 pages) is devoted to the last (Weichselian) cold stage and the subsequent deglaciation. A detailed survey of the glacial history is presented, with a discussion of the extent of Early and Middle Weichselian glaciation. Discussion of the deglaciation history includes the varve chronology and time markers such as the Vedde Ash (10–6 ka BP) and Laacher See Tephra (11 ka BP). In recent years many sites have been identified that shed light on the Quaternary history of Scandinavia prior to the last glaciation; deeply disintegrated bedrock in Sweden and Finland bears witness to pre-Quaternary weathering. In Denmark two sites preserve Comerian Interglacial sediments. Deposits of the Holsteinian (Hoxnian) Interglacial have been identified in Sweden, Finland, Estonia, Latvia and Lithuania, as well as Denmark and Germany. Saalian

(Wolstonian) tills are preserved in numerous places throughout Scandinavia, and present knowledge of the Eemian (Ipswichian) allows a well-founded reconstruction of the last interglacial predecessor of the Baltic Sea. The Eemian Baltic Sea was larger than today and connected via Lakes Onega and Ladoga to the White Sea.

The text reviewing these issues is illustrated by over 80 figures, and all line drawings have been redrawn for the book including numerous useful maps giving an overview of Scandinavia and the locations mentioned in the text. Some figures are a little over-simplified, such as the diagram of the amino acid ratios (fig. 15.2) in which the error bars of the original have been omitted. The photographs are beautiful; it would have been excellent to have had more of them. Over 1200 references provide a key for any prospective scholar of the Scandinavian Quaternary. As the author speaks all the languages in question, the list contains many titles in Finnish, Swedish, Norwegian, Danish and German, which might easily escape the attention of an English-speaking audience. Because the preparation of a book like this takes a long time, the most recent references are only from 1992. The index is rather short (about 200 entries) and does not include place names. However, overall the book is highly recommended to any reader who wants an up-to-date overview of the Scandinavian Quaternary.

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DRIFT EXPLORATION IN THE CANADIAN CORDILLERA edited by P. T. Bobrowsky, S. J. Sibbick, J. M. Newell and P. F. Matyssek, Mineral Resources Division, Geological Survey Branch, Ministry of Energy, Mines and Petroleum Resources, British Columbia, 1995. No. of pages: vi + 303. ISBN 0-7726-2368-6.

A few years ago, whilst on an INQUA field trip in southern Saskatchewan, Canada, we were informed that the Canadian Geological Survey was diamond prospecting in the till, and I viewed these deposits in a completely different light. Suddenly every piece of quartz became a potential gem, and I was struck with 'gold fever'. However, of course, the field trip findings were intellectual in nature, and so I welcomed the chance to review this more sober approach to drift exploration.

Any applied aspect of geomorphology requires both a good grounding in the basic principles (here, till depositional

processes), and a creative use of these ideas to solve environmental problems. This is emphasized in this book's foreword, which suggests 'successful mineral exploration in a Quaternary-dominated terrain requires an appreciation and understanding of the surficial sediment cover, glacial history, glacial dispersal theory and soil formation'.

The collection of papers begins with a series of mainly 'mapping' papers, then a series of 'techniques' papers, beginning with traditional field and laboratory techniques and ending with geophysical techniques. The final section is a useful bibliography of drift prospecting activities. This collection of papers is very useful for those interested in drift prospecting, both in research and in industry. Students will also be interested, because it provides a very good introduction to the subject. The papers are very well illustrated, many containing interesting photographic stereo pairs. They also describe many impressive excavating tools, including the backhoe and rotasonic drill, which have produced good sections and cores.